Václav Pavlíček

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Education

Imperial College London – MEng Electronic and Information Engineering 2020-2024

- **1st-year modules:** Digital Electronics and Computer Architecture; Programming for Engineers (**C++**); Analysis and Designs of Circuits (**MATLAB**); Topics in Electrical Engineering
- **1st-year mark:** First Class with Honours (72.95 %)
- **2nd-year modules:** Instruction Architectures and Compilers (**SystemVerilog**, **Linux Shell**, **C++**); Software Systems (**Python**, **SQL**); Signals and Systems (**Python**); Discrete Mathematics (**Python**); Mathematics for Engineers; Communications (**LabVIEW**); Control Systems (**MATLAB**); Information Processing (**Python**); Group Project (**C++**, **SystemVerilog**, **ReactJS**)
- **2nd-year mark:** First Class with Honours (75.80 %, **Dean's List**)
- **3rd-year modules** (ongoing): Advanced Computer Architecture, Introduction to ML, Digital Signal Processing, Operations Research, Real-Time DSP, Digital Systems Design, Statistical Signal Processing and Inference

SPŠE a VOŠ Pardubice – Maturita certificate (Czech Republic) 2016–2020

- Czech and literature (1), Mathematics (1), Physics (1), Hardware (1), Maturita project (1), Web applications (1) (1 – best grade possible)

Work Experience

Imperial College London – Research placement student 2023 (ongoing)

- Working under the supervision of Dr Ayush Bhandary on Unlimited Sampling Framework (USF).
- Using **MATLAB** to develop new algorithms that improve USF.
- Investigating algorithms and ideas from the published literature.

ESA – European Space Operations Centre – Student intern 2022

- Developed a validator for INTEGRAL satellite schedule in **Python**.
- Implemented tool in **Python** used to determine transponder swap times for INTEGRAL satellite
- Used **Git** to collaborate with others and **pytest** to develop both tools using test-driven development approach.

Institute of Physics of the Czech Academy of Sciences – Student intern 2019-2020 and 2021

- Developed **LabVIEW** programs for silicon sensors testing.
- Implemented a system for storing measurements data in **PHP** and **MySQL** running on **Docker** environment.
- Analysed measured data in **Python** obtained from testing in a report.
- Cooperated with other students on the automation of lab monitoring sensors using **Linux Shell** and **Python**.
- Received 4th place in a national round of the High school professional activity competition in Physics.

Commity – Software developer 2017-2019 and 2020

- Implemented Word export service for survey generator app in **Kotlin** and automized Word file testing.
- Independently configured **Docker** environment for automated testing environment.
- Remotely collaborated on the development of web client view of the application using **Git**.

Projects

Second Year Group Project - Autonomous rover 2022

- Developed multi-core **C++** control software using FreeRTOS for the rover.
- Created image processing components for FPGA in **SystemVerilog**.
- Implemented data view of the dashboard in **ReactJS**.
- Received **Head of Department's Prize for the Best Second Year Group Project**.

C-to-MIPS compiler 2022

- Developed a C-to-MIPS compiler in **C++** with another student.
- 5th best compiler out of 60 submissions.
- Project source code available at: https://github.com/MPVP-Code/Compiler.

NASA Space Apps Challenge – Imperial Rocks 2021

- Developed web app educating about the importance of asteroid light curves.
- Researched raytracing options in **JavaScript**.
- The team was selected as a Global nominee (https://bit.ly/3CwYywd) from 18 London teams.

First Year Group Project - MU0 Arm 2021

- Developed half and single-precision IEEE 754 floating-point unit in the educational tool ISSIE.
- Implemented pipelining for the CPU with the ability to resolve control, data and structural hazards.
- Collaborated with a team of 3 using **Git** and Agile methodology.
- Received **Head of Department's Prize for the Best First Year Group Project**.

ESA Astro Pi Challenge 2019–2020

- Proposed and implemented a space scientific mission in a team of 4 members.
- Analysed obtained data in the final report using **Python**.
- Developed an interactive app in **JavaScript** presenting data from the mission (https://pardubice-pi.cz/).
- The team was marked as one of the TOP 10 of all 523 international teams.

ESA CanSat international competition 2018-2019

- Collaboratively proposed a scientific mission for a can-sized probe.
- Developed software: probe and ground station software (**C++**), dashboard (**JavaScript**) and VR (**C#**).
- Analysed data from the mission in **Python**, wrote a report and presented the findings to the jury.
- Received Best Outreach Award and Award for the final report at international finals in the competition of 20 teams each representing a different country.

Volunteering

EESoc - Industrial Liason Officer 2022-2023

- Finding sponsors for the departmental society together with other society members.
- Preparing EESoc Careers Fair with an expected attendance of 20 companies and 300 students.
- Organising industry talks and other events with sponsoring companies.

Imperial College Space Society 2020-2023

- Designed fins in OpenRocket and Fusion 360 for NRC 2020 competition (https://bit.ly/3XcOum8).
- Elected rocketry project lead in spring 2021, led a group of 5 students.
- Launched a medium-power rocket launched in June 2022 (https://bit.ly/3IDPWdc).
- Currently leading the development of the flight computer.

SHM Krucemburk - child free-time activity organizer 2016-2021

- Organised six summer camps and a variety of irregular events in the local community for children.
- Obtained professional camp director accreditation from SHM Kobylisy completing a camp director course.

GUG.cz - event organizer 2017-2020

- Worked in teams of different sizes during the organisation of various diversity-supporting events with a number of attendees varying from 5 to 500 attendees.
- Co-organized DevFest conferences four times, each year having different responsibilities: community promoter, graphics designer, conference game developer (**JavaScript**), partners cooperation and PR.
- Regularly organised monthly Coding Dojo sessions (intensive team-based programming events).